

**SOFTWARE ARCHITECTURE & DESIGN PATTERN
(PROFESSIONAL ELECTIVE-IV)**

Course Code	23IT4701A	Year	IV	Semester	I
Course Category	PE-IV	Branch	IT	Course Type	Theory
Credits	3	L – T – P	3-0-0	Prerequisites	-
Continuous Evaluation	30	Semester End Evaluation	70	Total Marks	100

Course Outcomes		
Upon successful completion of the course, the student will be able to:		
CO1	Describe the fundamental concepts of Design Patterns, Pattern Structure and Object – Oriented concepts.	L2
CO2	Apply analysis and design principles to model and assess the software solutions.	L3
CO3	Apply the principles to design Object-Oriented applications using MVC architecture, Distributed technologies, Client/Server Architecture.	L3
CO4	Demonstrate the Structural design patterns to solve software design problems.	L3

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
CO1	3												
CO2	3	2	1									2	2
CO3	3	3	3									2	2
CO4	3	2										2	2

Syllabus		
Unit No.	CONTENTS	Mapped CO
I	Introduction: What is a design pattern?, Design Patterns in Smalltalk MVC, Describing design patterns, The catalog of design patterns, organizing the catalog, how to select a design pattern, how to use a design pattern. Basic Object-Oriented Concepts: Introduction: What is object oriented development?, Key concepts of object oriented design, Other related concepts, Benefits and drawbacks of the paradigm.	CO1
II	Analysing a System: Overview of the analysis phase, Stage 1: gathering the requirements, Functional requirements specification, Defining conceptual classes and relationships, Using the knowledge of the domain. Design and Implementation: Design: Major subsystems, Creating the software classes, Assigning responsibilities to the classes, Class diagram, User interface, Data Storage.	CO1, CO2
III	Design Pattern Catalog: Structural patterns: Adapter, bridge, composite, decorator, facade.	CO1, CO4
IV	Interactive systems and the MVC architecture: Introduction, The MVC architectural pattern, Analyzing a simple drawing program, Designing the system, Design of the subsystems.	CO1, CO3

V	Designing with Distributed Objects: Client/server systems, Java remote method invocation, Implementing an object oriented system on the web.	CO1, CO3
Learning Resources		
Text Books		
<ol style="list-style-type: none"> 1. Object Oriented Analysis, Design and Implementation, Brahma Dathan, Sarnath Rammath , Universities Press, 2013. 2. Design Patterns, Erich Gamma, Richard Helan, Ralph Johman, John Vlissides, PEARSON Publication, 2013. 		
ReferenceBooks		
<ol style="list-style-type: none"> 1. Frank Bachmann, Regine Meunier, Hans Rohnert—Pattern Oriented Software Architecture, Volume 1, 1996. 2. William J Brown et al., "Anti Patterns: Refactoring Software, Architectures and Projects in Crisis", John Wiley, 1998 		
E-Resources & other digital material		
<ol style="list-style-type: none"> 1. https://www.coursera.org/learn/design-patterns 		